

## Claims:

1. Process for the polymerisation or copolymerisation in the gas phase of ethylene by bringing the said ethylene into contact, under polymerization or copolymerisation conditions in a reactor in which the start-up bed is fluidised and/or agitated with mechanical stirring, with a catalyst system, which process comprises a pre start-up operation characterized in that, prior to the introduction of the catalytic system in the reactor, it comprises the following steps

1. determining the density  $d$  and melt index MI of all the polyethylene powders (grade slate) to be produced during the campaign from start-up to shut down,
2. heating the reactor by controlling the temperature inside the reactor such that
  - a. the temperature is maintained at a value equal or higher than the highest temperature corresponding to a RTSE value of 4.4 for all the polyethylene powders to be produced during the campaign.

2. Continuous gas fluidized bed process for the polymerization of ethylene monomer and one or more optional  $\alpha$ -olefins, in a fluidized bed reactor by continuously recycling a gaseous stream comprising at least some of the ethylene through the fluidized bed, comprising the steps of

1. having some or all of the recycling gas acting as the fluidizing gas through the bed in order to maintain the bed in the fluidized state,
2. heating the fluidizing gas with an external heating system,
3. determining the density  $d$  and melt index MI of all the polyethylene powders (grade slate) to be produced during the campaign from start-up to shut-down,

4. identifying in the RTSE tables the temperatures corresponding to a RTSE value of 4.4 for each grade,
5. having and/or building into the reactor the appropriate reactive olefin gas and/or liquid environment, and
- 5 6. a final step of introducing into the reactor the active polymerization catalyst specie which instantaneously starts the olefin polymerization process, characterized in that, before the final step of introducing the catalyst into the reactor, the heating step is conducted by controlling the temperature inside the reactor such that
  - a. the temperature is maintained at a value equal or higher than the highest  
10 temperature identified in above step 4.
3. Process according to claims 1 or 2 wherein the heating step by controlling the temperature inside the reactor is also such that the temperature is maintained at a value equal or lower than the lowest temperature which is identified by respectively
  - a. identifying in the RTSE tables the temperatures corresponding to a  
15 RTSE value of 4.2 for each grade to be produced during the campaign,
  - b. choosing the said lowest temperatures amongst the so-identified temperatures.
4. Process according to any of the preceding claims wherein all the polymer grades to be produced during the campaign require a heating temperature of at least 95°C,  
20 preferably at least 100°C.

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